

REMARKS

The Examiner is thanked for the performance of a thorough search.

Prior to this response, Claims 1-48 were pending in the application. In this response, Claims 49-50 are added and no claims are canceled. Hence, Claims 1-50 are pending in the application upon entry of this response.

Claims 1-3, 9-10, 17, 19, 22-38, 40-42, and 46-48 are amended herein.

THE REJECTIONS BASED ON THE PRIOR ART

Claims 1-48 were rejected under 35 U.S.C. §103(a) as allegedly unpatentable over Aboulnaga et al. ("*Aboulnaga*"; "Building XML Statistics for the Hidden Web") in view of Chan et al. ("*Chan*", Publication No. 2004/0260683), and further in view of Chaudhuri et al. ("*Chaudhuri*"; U.S. Pat. Publication No. 2004/0236762).

As an initial matter, the manner in which the Office Action subdivides the limitations of the present invention is improper. For example, the Office action subdivides a limitation of Claim 1 into the idea of "gathering statistics about XML resources that are stored in a . . . repository" and the idea of "database." The fragments of ideas resulting from this and other subdivisions do not have the same meaning or present the same problem as when combined. Therefore, Applicant asks that the limitations of the claims of the present invention be read as a whole. Specifically, Applicant asks that the word "database" be read in the context in which it is presented throughout the claims.

Claim 1

Claim 1 requires, among other things, "gathering statistics by a database server about XML resources that are stored in a database repository that is managed by the database server . . . and . . . the database server computing a computational cost associated with each of two or more

methods of accessing said one or more XML resources from said database repository, based on said statistics.” The prior art does not teach or suggest these limitations in any way.

Aboulnaga teaches a method of gathering statistics about “hidden Web data sources”.

The Web data sources are considered **hidden** because the data sources are **not directly accessible** to the system that is generating the statistics. In fact, the system that is generating the statistics does not even know the **form** of the data stored within the hidden Web data sources (the data may not be XML at all). The system that is generating the statistics simply knows the results produced by queries issued to the web source (the results are assumed to be in the form of XML, though the underlying data may not be).

As *Aboulnaga* explains: “These statistics are constructed by observing user queries to hidden Web data sources and their results” because the system generating the statistics has no direct access to the actual data of the hidden sources. (Section 1.2). The statistics are constructed based on a **virtual** XML document **representing** the hidden Web data source. (Section 3.1). The virtual XML document is not stored in a database repository because it is never fully materialized. (Section 3.1). Therefore, *Aboulnaga* fails to disclose gathering statistics **about XML resources that are stored in database repository**, as required by Claim 1.

Furthermore, Claim 1 requires “in response to a request to the database server for access to one or more XML resources from said database repository, the database server computing a computational cost associated with each of **two or more methods of accessing said one or more XML resources from said database repository, based on said statistics**”. Because the data sources are hidden in *Aboulnaga*, *Aboulnaga*’s system that computes statistics does not even have “two or more methods of accessing said one or more XML resources” available to it. The method of *Aboulnaga* has no control over how the hidden Web data source is accessed.

Since *Abounaga*'s system has only one way to access the hidden Web sources (through the user query over the Web), there would be no reason whatsoever for *Abounaga* to generate a cost for the single available access method. The *hidden* database management system controls the method of accessing the data to satisfy the user query, and does so without any knowledge of *Abounaga*'s statistics about the virtual XML document. *Abounaga* has no control over *hidden* access methods and therefore cannot teach the limitation of "computing a computational cost associated with each of two or more methods of accessing said one or more XML resources from said database repository," as required by Claim 1.

The Office Action does not even allege that *Chan* and *Chaudhuri* cure the deficiencies of *Abounaga*. Further, Applicant again respectfully submits that *Abounaga* is improperly combined with *Chaudhuri*. *Abounaga* "teaches away" from the embodiment recited in Claim 1 because *Abounaga* explicitly states that the method disclosed therein is not used in a circumstance where there is access to the database. ("[W]e cannot scan the entire data to build statistics." Section 1.2, Paragraph 2). In fact, *Abounaga* is to be used when and **because** there is **no direct access** to the database. ("[W]e cannot even view this data set, being able only to observe it indirectly" Section 1.2, Paragraph 5). Hence, the foregoing statements explicitly **teach away** from the subject matter recited in Claim 1, in which **statistics are gathered by a database server about XML resources that are stored in a database repository that is managed by the database server.**

Therefore, because the prior art does not teach or suggest the above-mentioned limitations as taught in Claim 1, the rejection under 35 U.S.C. § 103(a) with regard to Claim 1 is traversed. Claim 48 recites related features to those recited in Claim 1. Therefore, Claim 48 is patentable over the cited references of record for at least the same reasons as Claim 1. Also, Claims 2-37 depend from Claim 1. Therefore, these dependent claims are patentable over the cited references

of record for at least the same reasons as Claim 1. Applicant respectfully requests reconsideration and withdrawal of the rejection of Claims 1-37, and 48 under 35 U.S.C. §103(a).

Claim 38

Claim 38 requires, among other things “gathering, by a database management system, statistics about how many nodes within one or more XML resources that are stored in a repository of said database management system satisfy certain criteria.” Similar to Claim 1, this limitation from Claim 38 requires gathering statistics **about XML resources stored in a repository**. However, Claim 38 goes further than Claim 1, by expressly reciting that the statistics include “how many nodes within one or more XML resources that are stored in a repository of said database management system satisfy certain criteria”. This limitation is not taught or suggested in the prior art in any way.

As explained above, *Aboulnaga* fails to disclose gathering statistics **about XML resources that are stored in any kind of repository**. The statistics of *Aboulnaga* are constructed based on a virtual XML document representing the hidden Web data source. Furthermore, the Office Action does not even allege that *Chan* and *Chaudhuri* cure the deficiencies of *Aboulnaga*.

The prior art also fails to disclose or in any way suggest: “storing said statistics in said database management system; and the database management system using the statistics to determine how to process a query that accesses the one or more XML resources.” As explained above, in *Aboulnaga*, the hidden Web sources do not have access to the statistics about the virtual XML document, so it is not possible for them to use the statistics to process a query. Further, there would be no reason for them to use those statistics, since they are statistics about the virtual XML document, not statistics about data that is actually managed by the hidden Web sources.

Therefore, because the prior art does not teach or suggest the above-mentioned limitation taught in Claim 38, the rejection under 35 U.S.C. § 103(a) with regard to Claim 38 is traversed. Also, Claims 39-41 depend from Claim 38. Therefore, these dependent claims are patentable over the cited references of record for at least the same reasons as Claim 38. Applicant respectfully requests reconsideration and withdrawal of the rejection of Claims 38-41 under 35 U.S.C. §103(a).

Claim 42

Claim 42 requires, among other things, “computing a computational cost associated with each of two or more methods of accessing said one or more XML resources from said database repository, based on said statistics.” This limitation is not taught or suggested in the prior art in any way.

As explained above, *Aboulnaga* fails to disclose this limitation of Claim 42 because *Aboulnaga* the data sources are hidden and not under the control of the method disclosed therein. Hence, the method of *Aboulnaga* cannot have access to two or more methods of accessing XML resources. Also, the method taught therein cannot target the computational cost of accessing XML resources from a database repository. Therefore, *Aboulnaga* fails to teach or suggest the limitation of Claim 42. Furthermore, the Office Action does not even allege that *Chan* and *Chaudhuri* cure the deficiencies of *Aboulnaga*.

Therefore, because the prior art does not teach or suggest the above-mentioned limitation taught in Claim 42, the rejection under 35 U.S.C. § 103(a) with regard to Claim 42 is traversed. Claims 43-46 depend from Claim 42. Therefore, these dependent claims are patentable over the cited references of record for at least the same reasons as Claim 42. Applicant respectfully requests reconsideration and withdrawal of the rejection of Claims 42-46 under 35 U.S.C. §103(a).

Claim 47

Claim 47 requires, among other things, “a query optimizer that is configured to receive a database query and, in response to said query, formulate a query execution plan based on computational costs of access paths associated with XML data stored in said repository, wherein said computational costs are based on statistics characterizing an organizational structure of said XML data.” The prior art does not teach or suggest this limitation in any way.

As explained above, *Aboulnaga* teaches a method of gathering statistics about hidden Web data sources. *Aboulnaga* fails to disclose or teach a query optimizer formulating a query execution plan in any way. Furthermore, as explained above, the statistics in *Aboulnaga* are not used for generating the computational cost of access paths associated with XML data stored in a repository. The fact that the data sources are hidden means that the method of *Aboulnaga* does not have access to query optimizers, query plans, or access paths associated with XML data stored in a repository, as required by Claim 47. Therefore, *Aboulnaga* fails to teach or suggest the above limitation of Claim 47. Also, the Office Action does not even allege that *Chan* and *Chaudhuri* cure the deficiencies of *Aboulnaga*.

Therefore, because the prior art does not teach or suggest the above-mentioned limitation taught in Claim 47, the rejection under 35 U.S.C. § 103(a) with regard to Claim 47 is traversed. Applicant respectfully requests reconsideration and withdrawal of the rejection of Claim 47 under 35 U.S.C. §103(a).

CONCLUSION

For the reasons set forth above, it is respectfully submitted that all of the pending claims are now in condition for allowance. Therefore, the issuance of a formal Notice of Allowance is believed next in order, and that action is most earnestly solicited.

The Examiner is respectfully requested to contact the undersigned by telephone if it is believed that such contact would further the examination of the present application.

Please charge any shortages or credit any overages to Deposit Account No. 50-302.

Respectfully submitted,

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